

Introduction to Botany. Lecture 31

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November 16, 2011

Outline

- 1 Questions and answers
- 2 Kingdom Vegetabilia: plants
 - Bryophyta: mosses

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- 2 Kingdom Vegetabilia: plants
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Previous final question: the answer

- 1 *Arabidopsis thaliana* (L.) Heynh
- 2 *Citrus*
- 3 Piperaceae

Where is a genus name?

Previous final question: the answer

- 1 *Arabidopsis thaliana* (L.) Heynh
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Where is a genus name?

- 2

Results of Exam 3 (statistical summary)

Summary:

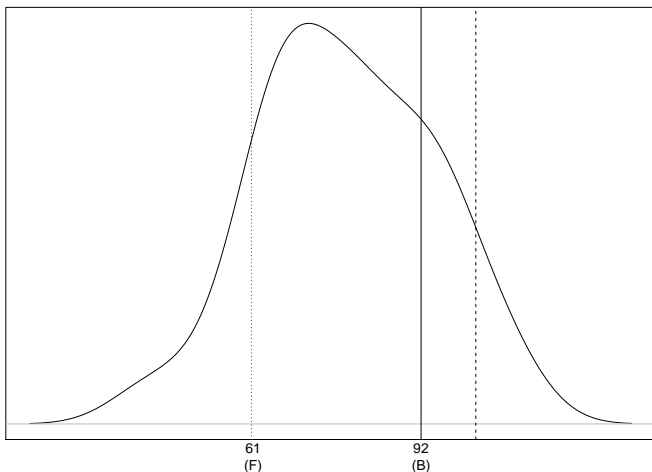
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
43.00	67.00	79.00	78.36	92.00	108.00	5.00

Grades:

F	D	C	B	max
61	72	82	92	102

Results of Exam 3 (the curve)

Density estimation for Exam 3 (Biol 154)



Points

Kingdom Vegetabilia: plants

Bryophyta: mosses

Three main phyla

- **Bryophyta:** gametophyte predominance
- **Pteridophyta:** sporophyte predominance, no seed
- **Spermatophyta:** sporophyte predominance, seed

Mosses: phylum Bryophyta

- $\approx 20,000$ species
- Sporic life cycle with gametophyte predominance*
- Sporophyte reduced to sporogon (sporangium with seta), usually achlorophyllous, parasitic
- No roots, only rhizoid cells (long hairy dead cells capable for apoplastic transport)
- Poikilohydric plants
- Gametophyte starts development from protonema

Protonema



Life cycle of mosses

(picture from the board)

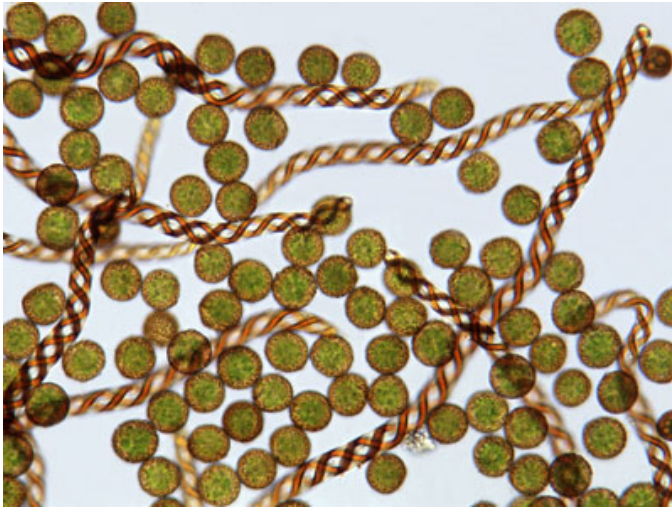
Three main groups (subphyla)

- **Hepaticae**—liverworts. Three classes, most primitive are Haplomitriopsida. Body has dorsal and ventral parts, sporogon bag-like, without columella, spores with elaters.
- **Bryophytina**—true mosses. Six classes, most important are Sphagnopsida (peat mosses), Polytrichopsida (haircap mosses) and Bryopsida. Body radial, sporogon long, with columella, spores without elaters.
- **Anthocerotophytina**—hornworts. One class. Body flattened, sporogon long, green, with columella and stomata, spores with elaters.

Haplomitrium gibbsiae, primitive liverwort



Elaters of liverworts (*Lepidozia* sp.)



Sphagnum sp. (Bryophyta, Sphagnopsida) with sporogons



Dawsonia superba (Bryophyta, Polytrichopsida)—the largest moss with vascular system



Bryum capillare (Bryophyta, Bryopsida)



Leiosporoceros dussii (Bryophyta, Anthocerotopsida)—primitive hornwort



Summary

- **Bryophyta**, **Pteridophyta** and **Spermatophyta** are three main phyla of plants.
- **Bryophyta** are only plants with gametophyte predominance.
- Among **Bryophyta**, Hepaticae is a most primitive group closest to green algae.

Final question (2 points)

Final question (2 points)

Is protonema haploid or diploid?

For Further Reading



J. E. Bidlack, Sh. H. Jansky.
Stern's introductory plant biology. 12th edition.
McGraw-Hill, 2011.
Chapter 20.



Th. L. Rost, M. G. Barbour, C. R. Stocking, T. M. Murphy.
Plant Biology. 2nd edition.
Thomson Brooks/Cole, 2006.
Chapter 21.